Konstantin Krasimirov Mladenov

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WORK EXPERIENCE

National Institute Of Meteorology and Hydrology   08.2021 - Present
Application Administrator   *Sofia, Bulgaria*

- Participated in the creation and administration of servers needed for the calculation and processing of Numerical Weather Prediction (NWP), as well as applying STIGs to said servers using Ansible Playbooks.
- Participated in the hardware and software set-up of a new High-Performance Computing (HPC) machine for the needs of the institute, including creation of the network topology and machine's further administration.
- Implemented Docker multi-container solution for post-processing of weather data.
- Participated in the implementation of Zabbix monitoring and created a hardened proxy server for the needs of remote monitoring.
- Administration and improvement of the SLURM workload manager used to manage resources on the HPC. Created manuals and workshops with users to teach them how the system works, troubleshoot issues and implement requests.
- Wrote a variety of scripts for the purpose of automation of tasks and ease of use of systems.
- Worked with third party end users to assure they received their data, troubleshoot issues and implement requests.
- Implemented Virtual Machines for the needs of data acquisition and processing in a production environment.
- Part of the Bulgarian team in the new Destination Earth (DestinE/ DEODE) project for virtual Earth twins, in which took main role as a sole representative for work package and worked with international team on creating a CI/CD pipeline and version control system for numerical model running with Python.
- Led a project on Artificial Intelligence and published a paper on AI in NWP. Published two separate papers on specialized postprocessing.
- Creation and management of parallel programming environment as well as hybrid parallel scripts using SLURM and Intel oneAPI.
- Compilation and administration of the mathematical models used for NWP and creating documentation for every step of the work process.
- Solely created a software used in collaboration between the National Institute of Meteorology and Hydrology and the Ministry of Ministry of Environment and Water for the assessment of exceedances of PM10 limit values in 2023 attributable to emissions from natural sources.

National Institute Of Meteorology and Hydrology   07.2022 - 10.2023
Expert   *Sofia, Bulgaria*

- Hired on a second simultaneous one-year contract to work on statistical analysis of forecast data.

National Institute of Meteorology and Hydrology   06.2020 – 08. 2021
Computer Programming Technician   *Sofia, Bulgaria*

- Parallel compilation from source of libraries and software needed for the successful working of the NWP mathematical models ALADIN and AROME
- Debugging, improvement and creation of scripts written in bash/ fortran. Created a bash/ fortran system for nearest neighbor interpolation of forecast data for the needs of unification of data.
- Porting and implementation of scripts used to provide end-clients with specialized weather forecast on new hardware/ software.
- Maintenance and administration of the servers, computers and supplementary hardware used in the process

of forecasting.

- On-call work for vital servers maintenance with multiple emergencies in which successfully managed to troubleshoot, find the issue and implement a fix with minimal to no downtime.
- Became part of the Bulgarian team in the ALADIN Numerical Weather Prediction Project, later the ACCORD Consortium for convection-scale modeling research and development, and participated in the development and improvement of the ALADIN and AROME Numerical Weather Prediction models.

European Centre for Medium-Range Weather Forecasts   09.2023 - Present
Computing Engineer   *Bonn, Germany*

- C++ for Java and Python Programmers
- Jupyterhub set up with ansible on morpheus self hosted cloud
- Code review for Time Critical activities (in house python schemas and scripts)

EDUCATION

University of Mining and Geology "St. Ivan Rilski"   07.2022
Masters of Engineering in Computer Science   *Sofia, Bulgaria*

- Achieved multiple stipends for research and development purposes.
- Presented posters and presentations at multiple international university conferences.
- Won a "Student of the Year" award.

Institute of Information and Communication Technologies - BAS   02.2018 - 08.2018
Internship in Web Design   *Sofia, Bulgaria*

- Six month paid internship in web design
- Internship ended with creation of a full web project.

CERTIFICATIONS, SKILLS & INTERESTS

- **Certifications:**
  - Linux System Administration - Software University, Sofia
  - Linux System Administration Advanced – Software University, Sofia
  - Network Fundamentals - Software University, Sofia
  - Programming Basics With C# - Software University, Sofia
  - Real world DevOps project from start to finish - Udemy
  - MOOC Machine Learning in Weather and Climate - ECMWF & IFAB
  - MOOC AI & CYBERSECURITY - University of Turku, Finland
- **Skills:** Linux Administration, Python Programming, Docker/Podman Container Administration, Virtualization, Windows AD, HPC Administration, Server monitoring, Server networking and security setup (incl. STIG), Relational Databases, Artificial Intelligence, Mathematical Modelling, Parallel Programming, Bash Programming, Version Control and CI/CD with GitHub/GitLab, Ansible
- **Interests:**
  - Traveling
  - Hiking
  - Technology (two published articles on sysadmin.signal blog, ex. RedHat Enable Sysadmin blog)
  - History